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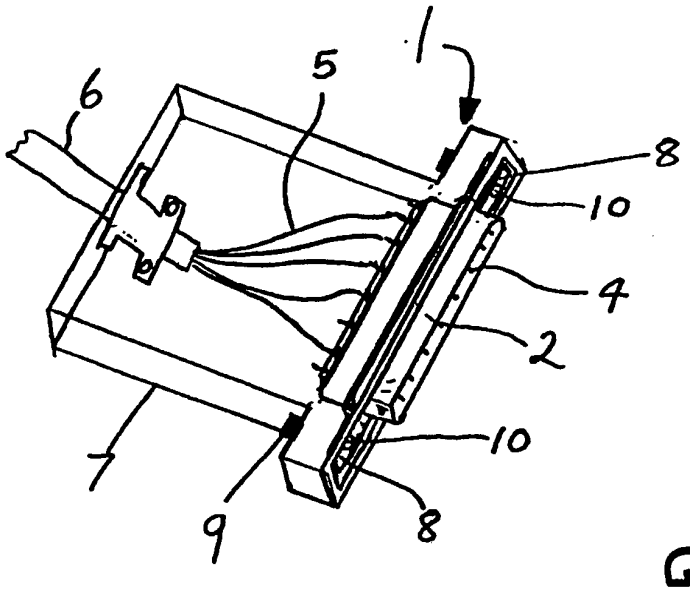
(54) Transparent electrical couplings

(57) A low voltage electrical coupling such as a standard RS 232 connector is provided with a series of pins 4 receiving colour coded wires 5 and a transparent detachable housing 7 which protects the interconnections between the wires and pins but allows the interconnection of all the pins to be seen through the housing for inspection during the servicing.



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The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

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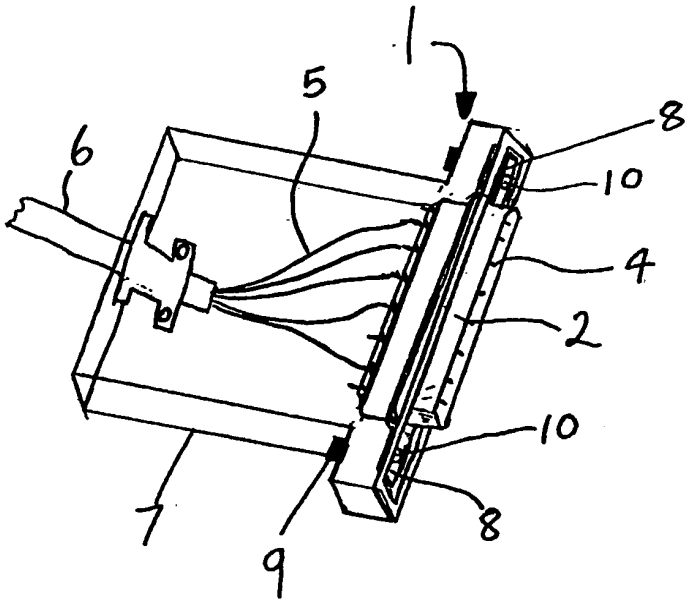

SPECIFICATION

Electrical couplings

This invention relates to low voltage electrical couplings.

It is well known in the field of electrical equipment which is assembled in modular form, such as in computers, for individual modules or parts of the equipment to be interconnected with other modules or parts of the equipment. The interconnection is usually made with a cable containing a plurality of colour coded wires which terminate, as desired, on the rear of individual pins of an electrical connector, such as a standard RS 232 or the equivalent V24 OCITT electrical connectors. This coding is standard notation which is well known to an engineer skilled in the art of computers of telecommunications.

Standard electrical connectors usually consist of a plurality of male or female pins regularly mounted in an insulated support which is itself supported in a metal frame. A rubber or plastics covering is attached to the metal frame and covers the electrical pin/wire interconnection to protect this interconnection and thus substantially reduce the occurrence of breakage between the wires and pins.

However, inevitably the colour coded wires sometimes become detached from the pins and in correcting the resultant fault it is usually necessary for a service engineer to shut down a computer, for example, and check all the relevant cable runs and electrical connectors by pulling the connectors free of the equipment and releasing the cover from the metal frame of the electrical connector to view the colour coded wires. Not only is the computer shut down but the continual disconnection of the rubber or plastics covering from the various connectors takes a great deal of time and is therefore costly whilst inevitably leading to further damage to the connector by the continual manipulation of the wires.

Therefore, it is desirable to provide an electrical connector in which the above mentioned disadvantages are substantially overcome.

According to the present invention there is provided a low voltage electrical coupling having at least one electrical pin to which at least one colour coded wire is attachable and a housing arranged to cover at least the interconnection between each pin and wire to protect said interconnection between the wire and pin, wherein a portion of the housing is transparent so that the pin and colour coded wire interconnection can be seen through the said transparent portion.

Preferably the transparent portion of the housing is the whole of one side of the housing, or the whole housing.

In a preferred embodiment of an electrical coupling according to the present invention there are twentyfive electrical connector pins mounted in an insulating block which is in turn supported by a metallic frame. The housing is attached to the metal frame by screws.

An embodiment of the present invention will now be described by way of example with reference to the accompanying drawings, in which is shown a perspective view of an electrical coupling according to the present invention.

Referring specifically to the drawings there is shown a low voltage electrical coupling, in the form of a standard RS 232 electrical connector, which is structured in accordance with the present invention. The electrical connector 1 comprises a metal frame 2 which supports an elongate block of insulating material 3 through which extends a plurality of electrically conductive connector pins 4. The pins 4 supported in the insulating material 3 extend rearwardly of the metal frame so that individual ones of the pins are connectable with wires 5 of a group of colour coded wires which together form a cable 6 to the electrical coupling.

A detachable housing 7 is located over the pins 4 and wires 5 connected thereto to protect the wires and connections to the rear of the connector pins. The interconnection between the wires and pin is effected by soldering.

The metal frame 2 is of a generally elongate construction and has at its opposite ends flanges 8 which serve for attaching the housing 7 to the metal frame via screws 9 and holes 10 in the flanges.

The housing 7 is one piece moulding of transparent synthetic plastics material such as clear polyvinal chloride (PVC) or perspex, to enable the colour coded wires 5 connected to the rear of the electrical pins 4 to be clearly seen at all times. Therefore, should a breakage occur between a wire 5 and the corresponding electrical pin 4 whilst the cable 6 and connector 1 are in use in a computer for example, the breakage can be seen without the connector being disconnected from the computer which would otherwise require the computer to be shut down. Consequently, servicing of the computer is greatly enhanced and the shut down time of the computer for finally resoldering a joint is greatly reduced.

The transparent synthetic plastics material used is particularly useful with electrical couplings which handle relatively low d.c. voltage of say 12V d.c. rather than the 250 VAC mains voltage.

Whilst this invention has been described with reference to a standard RS 232 connector applicant's invention is also applicable to any low voltage electrical connector whether it be of a plug or socket configuration and extends to connectors to be used in any type of electrical equipment whether it be for interconnecting modules of a Hi Fi radio or cassette record player equipment.

CLAIMS

1. A low voltage electrical coupling having at least one electrical pin to which at least one colour coded wire is attachable and a housing arranged to cover at least the interconnection between each pin and wire to protect said interconnection between the wire and pin, wherein a portion of the housing is transparent so that the pin and colour coded wire interconnection can be seen through the said transparent portion.

2. A coupling as claimed in claim 1, wherein the whole of the housing is of a transparent material.

3. A coupling as claimed in claim 1, wherein the whole of one side of the housing is of a transparent material.

4. A coupling as claimed in any one of the preceding claims, wherein twentyfive electrical connections are mounded in an insulating block supported in a metallic frame.

5. A coupling as claimed in claim 4, wherein the housing is attached to the metal frame by screws.

6. A coupling as claimed in any one of the preceding claims, wherein the material from which the housing is formed is clear polyvinal chloride.

7. A low voltage electrical coupling substantially as hereinbefore described with reference to, or as illustrated in, the accompanying drawing.

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